

IN THE CLAIMS:

Please cancel claims 1-11 without prejudice.

Please add new claims 12-32 as follows:

CLAIMS

12. (New) A compressor designed to be lowered into a well of a natural gas reservoir to assist in extracting gas from the reservoir, the compressor comprising:

at least one casing;

at least one rotor mounted within the casing;

at least one electric motor for driving the rotor having a stator with windings mounted in the casing and an armature formed as part of the rotor;

one or more gas bearings supporting the rotor for rotation relative to the stator, the gas bearings being arranged at an upstream end and a downstream end thereby arranged at opposite ends of the motor;

a bladed impeller wheel for compressing a production of gas from a reservoir which is mounted on an overhanging end of the rotor that projects beyond the gas bearing at one end of the motor, such that all the gas bearings of an auxiliary compressor and of the electric motor are arranged on a same side of the bladed impeller wheel; and

during operation, the gas flows over to cool the electric motor.

13. (New) The compressor of claim 12, wherein the rotor is formed hollow to assist in cooling of the motor.

14. (New) The compressor of claim 12, wherein the bladed impeller wheel is arranged at an upstream end of the rotor and wherein an auxiliary compressor is mounted on a downstream end of the rotor, the auxiliary compressor drawing the gas from a downstream of a main compressor and serving to supply the gas after further pressurization to the bearings of the rotor.

15. (New) The compressor of claim 14, wherein both the main compressor and the auxiliary compressor are overhung with all the bearings being situated axially between the main compressor and the auxiliary compressor.

16. (New) The compressor of claim 14, wherein the auxiliary compressor is also an axial compressor.

17. (New) The compressor of claim 15, wherein the auxiliary compressor is also an axial compressor.

18. (New) The compressor of claim 14, wherein the auxiliary compressor is a centrifugal compressor.

19. (New) The compressor of claim 15, wherein the auxiliary compressor is a centrifugal compressor.

20. (New) The compressor of claim 14, further comprising:
a purifier is provided in an intake of the auxiliary compressor.

21. (New) The compressor of claim 19, further comprising:

a purifier is provided in an intake of the auxiliary compressor.

22. (New) The compressor of claim 14, wherein the gas pressurized by the auxiliary compressor is discharged into an axial flow of produced gas after passing through the bearings.

23. (New) The compressor of claim 21, wherein the gas pressurized by the auxiliary compressor is discharged into an axial flow of produced gas after passing through the bearings.

24. (New) The compressor of claim 14, further comprising:

means for transferring heat from the gas discharged from the bearings to the axial flow of the gas and for recycling a cooled gas to the intake of the auxiliary compressor, whereby the gas supply to the bearing flows through an essentially closed circuit.

25. (New) The compressor of claim 20, further comprising:

means for transferring heat from the gas discharged from the bearings to the axial flow of the gas and for recycling a cooled gas to the intake of the auxiliary compressor, whereby the gas supply to the bearing flows through an essentially closed circuit.

26. (New) The compressor system of claim 1, further comprising

at least one additional auxiliary compressor arranged in tandem with the auxiliary compressor.

27. (New) The compressor system of claim 4, further comprising at least one additional auxiliary compressor arranged in tandem with the auxiliary compressor.

28. (New) The compressor system of claim 15, further comprising at least one additional auxiliary compressor arranged in tandem with the auxiliary compressor.

29. (New) The compressor system of claim 19, further comprising at least one additional auxiliary compressor arranged in tandem with the auxiliary compressor.

30. (New) The compressor system of claim 25, further comprising: a plurality of auxiliary compressors arranged in tandem position at different heights along a bore hole of a well.

31. (New) The compressor system of claim 26, further comprising: a plurality of auxiliary compressors arranged in tandem position at different heights along a bore hole of a well.

32. (New) The compressor system of claim 27, further comprising: a plurality of auxiliary compressors arranged in tandem position at different heights along a bore hole of a well.